



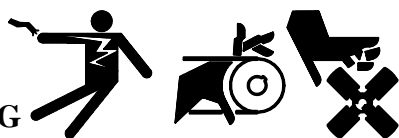
Engine Block Heater Kits (Tank Type) 17RY/20RZ/30RZ (LSG-423 Ford-Powered) Standby Generator Sets

Model	Voltage	Kit No.
17RY/20RZ	120	PA-276223
17RY/20RZ	240	PA-276224
30RZ	120	PA-276210
30RZ	240	PA-276211

The engine block heater kit heats engine coolant, making starting easier and warm-up quicker. The thermostat will automatically turn off when coolant temperature reaches 120° F (49° C).



WARNING



Accidental starting can cause death or serious personal injury. Turn Generator Master Switch to OFF position, disconnect power to battery charger, and remove battery cables (remove negative lead first and reconnect it last) to disable generator set before working on any equipment connected to generator. The generator set can be started by automatic transfer switch or remote start/stop switch unless these precautions are followed.

INSTALLATION

1. Place controller master switch to OFF position. Disconnect battery of generator set, negative lead first.



WARNING



Hot coolant can cause severe burns.

Allow engine to cool and release pressure from cooling system before opening pressure cap. To release pressure, cover the pressure cap with a thick cloth then turn it slowly counterclockwise to the first stop. After pressure has been completely released and the engine has cooled, remove cap. If generator set is equipped with a coolant recovery tank, check coolant level at tank.

2. With generator set sufficiently cooled, drain the coolant into a suitable container.

Do NOT pollute the environment. Dispose of used coolant and other contaminants in a safe and approved manner.

NOTE

Petcock valve is located on radiator bottom and/or engine bottom.

3. Remove freeze plug from engine. See Figure 1 for location. To remove freeze plug, use a freeze plug puller, or puncture center with punch and pry out. Clean hole and remove burrs.

NOTE

Be careful not to damage sealing surface.

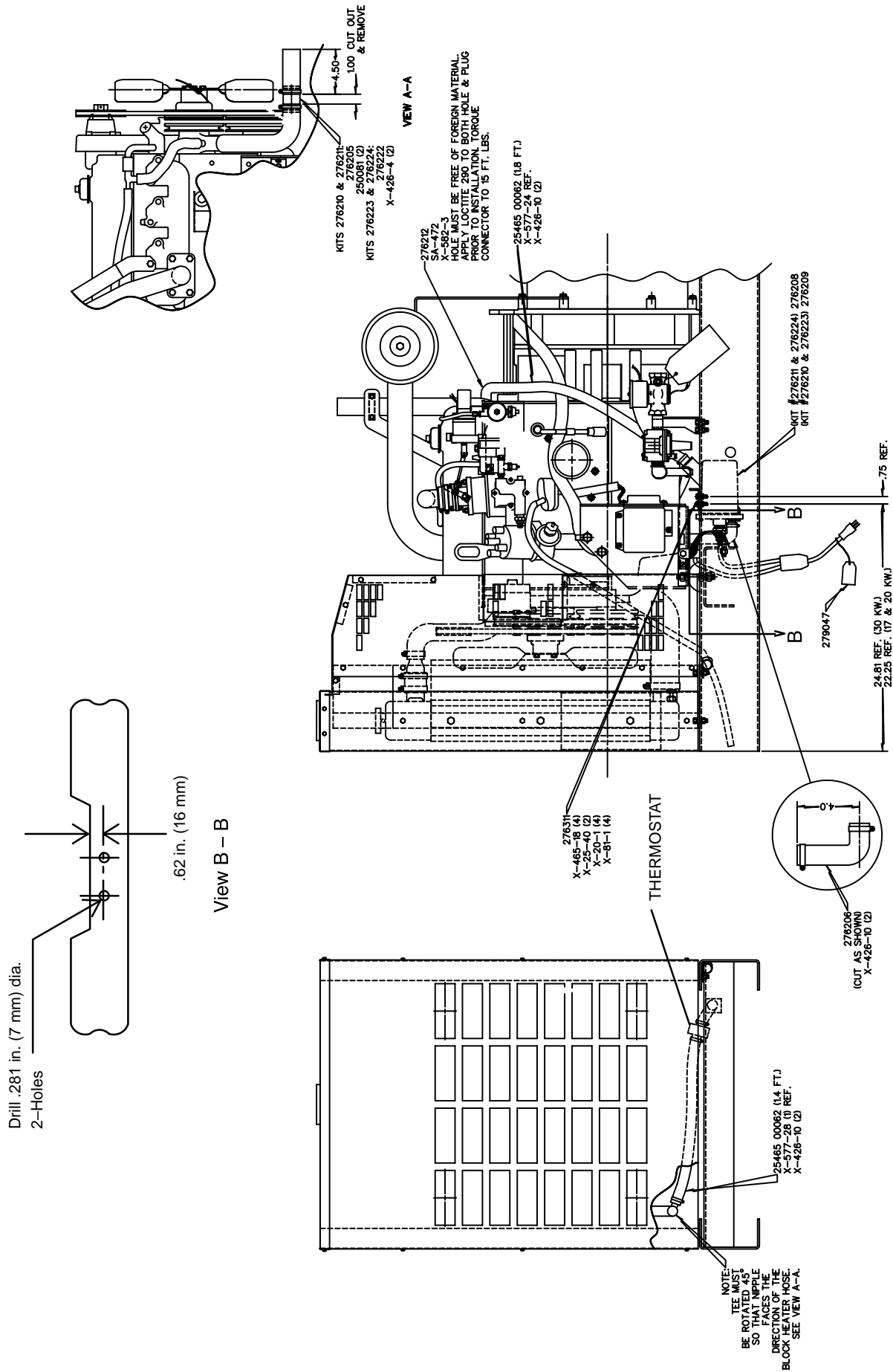


Figure 1. Block Heater Installation

4. With components clean and dry, apply Loctite® threadlocker 290 (green) or equivalent to freeze plug and hole. Install freeze plug adapter 276212 using hardwood dowel and hammer. Drive freeze plug adapter into engine block so that it is flush with outside surface of block. Do NOT drive freeze plug adapter beyond that point or it may be forced into the water jacket.
5. Apply pipe sealant to male threads of pipe elbow SA-472 and install into freeze plug adapter. Pipe elbow should be pointing to the 7 o'clock position (as viewed from the generator end). Torque pipe elbow to 15 ft. lbs. (20 Nm). Apply pipe sealant to hose connector X-582-3 and install into pipe elbow.
6. Locate lower radiator hose and mark hose at 4-1/2 in. (114 mm) and 5-1/2 in. (140 mm) from radiator outlet. Cut at these marks to remove 1 in. (25 mm) from hose.
7. Place two *large* hose clamps 250081/X-426-4 on cut radiator hose (one on each end). Install tee hose connector 276205/276222 with nipple pointing to the 4 o'clock position (as viewed from the radiator end). Locate hose clamps 1/4 in. (6 mm) from end of hose and tighten.
8. Attach block heater bracket 276311 to skid using two screws X-465-18, split-lock washers X-20-1, and nuts X-81-1.
- X-25-40, split-lock washers X-20-1, and nuts X-81-1.
10. Place two hose clamps X-426-10 on each end of hose X-577-24. Connect hose to hose connector on engine block and to block heater outlet. Locate hose clamps 1/4 in. (6 mm) from end of hose and tighten.,
11. Place two hose clamps X-426-10 on hose X-577-28. Connect hose to tee hose connector and thermostat. Thermostat can be installed with either end toward radiator. Place electrical connector to the top. Locate hose clamps 1/4 in. (6 mm) from end of hose and tighten.
12. Cut molded hose 276206, see Figure 1. Place two hose clamps X-426-10 on molded hose. Connect short end of molded hose to block heater inlet and the other end to thermostat. Locate hose clamps 1/4 in. (6 mm) from end of hose and tighten.
13. Use cable ties, as necessary, to protect and secure wiring from sharp objects, exhaust system, and any moving parts.
14. Close petcock drain valves on bottom of radiator and/or engine block. Open air bleed valve located on top right side of engine (as viewed from the generator end).
15. Fill cooling system to proper level with fresh coolant. A solution of 50% ethylene glycol and 50% clean, softened water is recommended to inhibit rust/corrosion and provide freezing protection. See Table 1 for coolant capacities. Close air bleed valve.

NOTE

Early generator sets may not have pre-drilled holes in skid. Use bracket as a template and drill two 19/64 in. (7 mm) dia. holes in skid. See Figure 1 and View B-B for location.

9. Install block heater 276208/276209 to bracket using two screws X-465-18, plain washers

NOTE

Coolant mixtures exceeding 50% ethylene glycol may cause block heater element failure.

Model	Standard Radiator	Remote Radiator	City–Water Cooled
17RY	2 (7.6)	3.5 (13.25)	3 (11)
20RZ	2 (7.6)	3.5 (13.25)	3 (11)
30RZ	4 (15.1)	3.5 (13.25)	4 (14.7)

NOTE: Capacities shown may vary from model to model and are subject to change.

Table 1. Coolant Capacities – U.S. Gal. (L)

16. Check that the controller master switch is in the OFF position. Reconnect battery, negative lead last.

17. Test run the generator set for a few minutes and check for leaks.

NOTE

Special attention should be given when checking for proper coolant level. After a radiator has been drained, it normally requires some time before complete refill of all air cavities takes place.

18. Connect block heater electrical plug to proper voltage outlet.

Parts Listing

Qty.	Description	Common	Kit Numbers			
		Parts	PA–276210	PA–276211	PA–276223	PA–276224
1	Elbow, pipe	SA–472				
4	Washer, 1/4 split–lock	X–20–1				
2	Washer, 9/32 x 5/8 x 1/16 plain	X–25–40				
6	Clamp, 1 in. hose	X–426–10				
4	Screw, 1/4–20 x 7/8, Gr. 5	X–465–18				
1	Hose, 5/8 in. ID x 21 in.	X–577–24				
1	Hose, 5/8 in. ID x 17 in.	X–577–28				
1	Connector, hose	X–582–3				
4	Nut, 1/4–20	X–81–1				
2	Clamp, 3 in. hose		250081	250081	–	–
2	Clamp, 2–1/4 in. hose		–	–	X–426–4	X–426–4
1	Connector, tee hose		276205	276205	276222	276222
1	Hose, molded	276206				
1	Bracket, block heater	276311				
1	Heater, block		276209	276208	276209	276208
1	Adapter, freeze plug	276212				